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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/809,770

03/25/2004

James J. Finley

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02/10/2006

PPG INDUSTRIES, INC.  
INTELLECTUAL PROPERTY DEPT.  
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EXAMINER

BLACKWELL RUDASI, GWENDOLYN A

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/809,770

Applicant(s)

FINLEY, JAMES J.

Examiner

Gwendolyn Blackwell

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1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/05/5/05/7/04.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-6, drawn to a cathode target, classified in class 204, subclass 432.
  - II. Claims 7-19, drawn to a method of depositing, classified in class 204, subclass 192.1.
  - III. Claims 20-34, drawn to a coated article, classified in class 428, subclass 428.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and Group II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used in a materially different process. Instead of using a gas selected from the group consisting of inert gas, nitrogen, oxygen and mixtures thereof, the target can be used in an atmosphere containing silicon to deposit a silicide.
3. Inventions of Group II and Group III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the

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instant case the product can be made by a materially different process. Instead of sputtering using elongated cathode targets, the Ti-Al layer can be formed using CVD.

4. Inventions of Group III and Group I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the subcombination is a cathode target that could be used for depositing the film of the combination. However, the film of the combination can be deposited utilizing a method, which is not sputtering. The subcombination has separate utility such as product used to deposit films through sputtering.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Jacques Miles on November 7, 2005 a provisional election was made without traverse to prosecute the invention of Group III, claims 20-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

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8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Objections***

9. Claim 29 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 29, line 2 recites in part “the functional coating comprises at least one dielectric layer and at least one infrared layer”. Independent claim 27, from which claim 29 depends already includes the aforementioned limitations.

### ***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.*

11. Claims 20-24, 27-31 and 34 are rejected under 35 U.S.C. 102(a) as being anticipated by United States Patent Application Publication no. 2003/0012963, Ebisawa et al.

*Regarding claims 20-21, 24, 27, 29, and 31*

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Ebisawa et al disclose a glazing panel comprised of a substrate, a base antireflective coating, an infrared layer, a central antireflective coating, an infrared layer, and a top antireflective coating (functional coating), (page 1, section 0018). The antireflective layer can be zinc oxide layer with additional Ti and Al, (page 2, sections 0026 and 0033), meeting the limitations of claims 20, 24, and 31. Barrier layers (primer) can be deposited so as to underlie or overlay the infrared reflecting layer, (page 3, section 0044), meeting the limitations of claims 20-21, 24, 27, 29, and 31.

*Regarding claims 22-23, 28, 30, and 34*

The barrier layer can be metallic layers, sub-oxides layers or alternatively nitrided barrier layers of one or more of the following such as NiCr, ZnAl, and ZnTi, (page 3, section 0044), meeting the limitations of claims 22, 28, and 34. The infrared layer can be Ag and Au, (page 1, section 0015), meeting the limitations of claims 23 and 30.

12. Claims 20-21, 24-27, 29, and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent no. 4,992,087, Holscher.

*Regarding claims 20 and 24-26*

Holscher disclose a coating formed on a glass substrate wherein the coating is comprised of a coating of Al-Ti formed on a chromium on a substrate. Aluminum is present in the amount of 60 at%, (column 3, lines 34-56), meeting the limitations of claims 20 and 25-26.

*Regarding claims 27, 29, and 31-33*

In addition to the Al-Ti layer formed on chromium on a substrate, a layer of tantalum pentoxide can be inserted between the chromium layer and the substrate, (column 3, lines 21-30), meeting the limitations of 21, 27, 29, 31-33.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

14. Claims 20-27, 29, 30, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent no. 6,007,901, Maschwitz et al further in view of United States Patent no. 4,992,087, Holscher.

*Regarding claim 20-21, 24, 27, and 29*

Maschwitz et al disclose a heat reflecting fenestration product with color corrective and corrosion protective layers (functional coating) wherein the coating is comprised of a first outer dielectric layer, an infrared reflecting metal layer, a color correcting metal layer, a protective metal layer, one or more subcomposite, and a second outer dielectric layer, (column 2, lines 31-48). The protective metal layer is made from a metal such as Al, Ti, Zr, Ni, Hf, Ta, W, and alloys thereof, (column 2, lines 62-67). Maschwitz et al do not specifically disclose using TiAl as the protective metal layer.

The protective metal layer can be Al, Ti, Zr, Ni, Hf, Ta, W, and alloys thereof, (column 2, lines 62-67). While there are not specific examples demonstrating the use of TiAl, it would have been obvious to one skilled in the art at the time of invention to utilize an alloy of TiAl in order to create an protective layer that is exceptionally degradation resistant and less expensive, (columns 5-6, lines 62-2).

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*Regarding claims 22-23, 30, and 34*

The color correcting layer can be Cr, Co, Ni, Zn, Pd, In, Sn, An, Pl, Bi, and alloys thereof, (column 5, lines 30-37) (claims 22 and 34). The infrared reflecting material layer is comprised of Ag, Au, Cu and alloys thereof, (column 2, lines 54-56) (claims 23 and 30).

*Regarding claims 25-26 and 32-33*

Maschwitz et al disclose that the protective metal layer is made from a metal such as Al, Ti, Zr, Ni, Hf, Ta, W, and alloys thereof, (column 2, lines 62-67). Maschwitz et al does not specifically disclose the amount of Al in the TiAl alloy.

While the amount of Al is not specifically disclosed, absent a showing of criticality with respect to the amount of Al (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the amount of Al in conjunction with the Ti through routine experimentation in order to achieve a composite protective layer that is degradation resistant while balancing the expense of the materials used. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (claims 25-26 and 32-33).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:30 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gwendolyn Blackwell  
Examiner  
Art Unit 1775

  
JENNIFER MCNEIL  
PRIMARY EXAMINER  
2/6/6